



## Complete Summary

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### TITLE

Hip fracture: mortality rate.

### SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

## Measure Domain

### PRIMARY MEASURE DOMAIN

Outcome

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

### SECONDARY MEASURE DOMAIN

Does not apply to this measure

## Brief Abstract

### DESCRIPTION

This measure is used to assess the number of deaths per 100 discharges with principal diagnosis code of hip fracture.

Thirty-day mortality may be somewhat different than in-hospital mortality, leading to information bias. Mortality rates should be considered in conjunction with length of stay and transfer rates. Risk adjustment for clinical factors (or at a minimum 3M™ All-Patient Refined Diagnosis-Related Groups [APR-DRGs] with Risk-of-Mortality subclass) is recommended. Limited evidence exists for the construct validity of this indicator.

### RATIONALE

About 36% of personal health care expenditures in the United States go towards hospital care, and the rate of growth in spending for hospital services has begun

to increase following a half a decade of declining growth. Simultaneously, concerns about the quality of health care services have reached a crescendo with the Institute of Medicine's series of reports describing the problem of medical errors and the need for a complete restructuring of the health care system to improve the quality of care. Policymakers, employers, and consumers have made the quality of care in U.S. hospitals a top priority and have voiced the need to assess, monitor, track, and improve the quality of inpatient care.

Hip fractures, which are a common cause of morbidity and functional decline among elderly persons, are associated with a significant increase in the subsequent risk of mortality. Complications of hip fracture and other comorbidities lead to a relatively high mortality rate, and evidence suggests that some of these complications are preventable. Better processes of care may reduce mortality for hip fracture, which represents better quality.

#### PRIMARY CLINICAL COMPONENT

Hip fracture; mortality

#### DENOMINATOR DESCRIPTION

All discharges, age 18 years and older, with a principal diagnosis code\* for hip fracture. Exclude patients with missing discharge disposition, transferring to another short-term hospital, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

\*Refer to Appendix A of the original measure documentation for details.

#### NUMERATOR DESCRIPTION

Number of deaths with a principal diagnosis code\* of hip fracture

\*Refer to Appendix A of the original measure documentation for details.

### Evidence Supporting the Measure

#### EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

### Evidence Supporting Need for the Measure

#### NEED FOR THE MEASURE

Variation in quality for the performance measured

#### EVIDENCE SUPPORTING NEED FOR THE MEASURE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

## State of Use of the Measure

### STATE OF USE

Current routine use

### CURRENT USE

External oversight/State government program  
Internal quality improvement  
Quality of care research

## Application of Measure in its Current Use

### CARE SETTING

Hospitals

### PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

### LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

### TARGET POPULATION AGE

Age greater than or equal to 18 years

### TARGET POPULATION GENDER

Either male or female

### STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

## Characteristics of the Primary Clinical Component

### INCIDENCE/PREVALENCE

Population Rate (2002): 3.34 per 100 discharges at risk.

## EVIDENCE FOR INCIDENCE/PREVALENCE

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p.(AHRQ Pub; no. 02-R0204).

## ASSOCIATION WITH VULNERABLE POPULATIONS

See "Burden of Illness" field.

## BURDEN OF ILLNESS

Hip fractures are associated with a significant increase in the subsequent risk of mortality, which persists for a minimum of 3 months among the oldest and most impaired individuals. Elderly patients often have multiple comorbidities and pre-fracture functional impairments. As a result, they are at significant risk of postoperative complications, which--if not recognized and effectively treated--can lead to life-threatening problems.

## EVIDENCE FOR BURDEN OF ILLNESS

Forsen L, Sogaard AJ, Meyer HE, Edna T, Kopjar B. Survival after hip fracture: short- and long-term excess mortality according to age and gender. Osteoporosis Int1999; 10(1): 73-8. [PubMed](#)

Wolinsky FD, Fitzgerald JF, Stump TE. The effect of hip fracture on mortality, hospitalization, and functional status: a prospective study. Am J Public Health1997 Mar; 87(3): 398-403. [PubMed](#)

## UTILIZATION

Unspecified

## COSTS

Unspecified

## Institute of Medicine National Healthcare Quality Report Categories

## IOM CARE NEED

Getting Better

## IOM DOMAIN

Effectiveness

## CASE FINDING

Users of care only

## DESCRIPTION OF CASE FINDING

Patients with hip fracture, age 18 years and older, discharged from the hospital (see the "Denominator Inclusions/Exclusions" field)

## DENOMINATOR SAMPLING FRAME

Patients associated with provider

## DENOMINATOR INCLUSIONS/EXCLUSIONS

### Inclusions

All discharges, age 18 years and older, with a principal diagnosis code\* for hip fracture.

\*Refer to Appendix A of the original measure documentation for details.

### Exclusions

Exclude patients with missing discharge disposition, transferring to another short-term hospital, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), and MDC 15 (newborns and other neonates).

## DENOMINATOR (INDEX) EVENT

Clinical Condition  
Institutionalization

## DENOMINATOR TIME WINDOW

Time window is a single point in time

## NUMERATOR INCLUSIONS/EXCLUSIONS

### Inclusions

Number of deaths with a principal diagnosis code\* of hip fracture

\*Refer to Appendix A of the original measure documentation for details.

### Exclusions

Unspecified

## NUMERATOR TIME WINDOW

Institutionalization

## DATA SOURCE

Administrative data

## LEVEL OF DETERMINATION OF QUALITY

Not Individual Case

## OUTCOME TYPE

Clinical Outcome

## PRE-EXISTING INSTRUMENT USED

Unspecified

## Computation of the Measure

## SCORING

Rate

## INTERPRETATION OF SCORE

Better quality is associated with a lower score

## ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)  
Risk adjustment method widely or commercially available

## DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Observed (raw) rates may be stratified by hospitals, age groups, race/ethnicity categories, sex, and payer categories.

Risk adjustment of the data is recommended using, at minimum, age, sex, and 3M™ All-Patient Refined Diagnosis-Related Groups (APR-DRGs) with Risk-of-Mortality subclass\*.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

Note: Information on the 3M™ APR-DRG system is available at  
[http://www.3m.com/us/healthcare/his/products/coding/refined\\_drg.jhtml](http://www.3m.com/us/healthcare/his/products/coding/refined_drg.jhtml).

## STANDARD OF COMPARISON

External comparison at a point in time  
External comparison of time trends  
Internal time comparison

## Evaluation of Measure Properties

### EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

### EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p. (AHRQ Pub; no. 02-R0204).

## Identifying Information

### ORIGINAL TITLE

Hip fracture mortality rate (IQI 19).

### MEASURE COLLECTION

[Agency for Healthcare Research and Quality \(AHRQ\) Quality Indicators](#)

### MEASURE SET NAME

[Agency for Healthcare Research and Quality \(AHRQ\) Inpatient Quality Indicators](#)

### DEVELOPER

Agency for Healthcare Research and Quality

### ADAPTATION

Measure was not adapted from another source.

## RELEASE DATE

2002 Jun

## REVISION DATE

2004 Jul

## MEASURE STATUS

Please note: This measure has been updated. The National Quality Measures Clearinghouse is working to update this summary.

## SOURCE(S)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 183 p. (AHRQ Pub; no. 02-R0204).

## MEASURE AVAILABILITY

The individual measure, "Hip Fracture Mortality Rate (IQI 19)," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization." An update of this document is available from the [Quality Indicators](#) page at the Agency for Healthcare Research and Quality (AHRQ) Web site.

For more information, please contact the QI Support Team at [support@qualityindicators.ahrq.gov](mailto:support@qualityindicators.ahrq.gov).

## COMPANION DOCUMENTS

The following are available:

- AHRQ quality indicators. Inpatient quality indicators: software documentation [version 2.1, revision 4] - SPSS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 45 p. (AHRQ Pub.; no. 02-R208). This document is available from the [Agency for Healthcare Research and Quality \(AHRQ\) Web site](#).
- AHRQ quality indicators. Inpatient quality indicators: software documentation [version 2.1, revision 4] - SAS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec 22. 45 p. (AHRQ Pub.; no. 02-R208). This document is available from the [AHRQ Web site](#).
- Remus D, Fraser I. Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available from the [AHRQ Web site](#).
- AHRQ inpatient quality indicators - interpretive guide. Irving (TX): Dallas-Fort Worth Hospital Council Data Initiative; 2002 Aug 1. 9 p. This guide helps you to understand and interpret the results derived from the application of the



Inpatient Quality Indicators software to your own data and is available from the [AHRO Web site](#).

- UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no. 4). This document is available from the [AHRO Web site](#).

## NQMC STATUS

This NQMC summary was completed by ECRI on December 4, 2002. The information was verified by the Agency for Healthcare Research and Quality on December 26, 2002. This NQMC summary was updated by ECRI on April 7, 2004, August 19, 2004, and most recently on March 4, 2005. The information was verified by the measure developer on April 22, 2005.

## COPYRIGHT STATEMENT

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